REMARKS

Claims 1-4 are now pending in the application. Claims 1 and 2 have been amended. The amendments are supported by paragraphs 9, 32, and 39 of the original disclosure.

The Examiner is respectfully requested to reconsider and withdraw the rejection(s) in view of the amendments and remarks contained herein.

Rejection Under 35 U.S.C. § 102 (a) & (e) or § 103(a) over Takeda et al.

Claims 1-4 have been rejected as anticipated by Takeda et al., U.S. Patent 6,355,598. Applicants respectfully traverse the rejection as applied to the amended claims and request reconsideration.

The Takeda patent describes a thermal transfer sheet that is marked to show that it is approved for a particular printer. Column 4, lines 16-21. The printer detects the mark and thereby can limit use of thermal transfer sheets to those bearing the approval mark. Col. 4, lines 59-65. The mark may be detectable by absorbing or emitting UV or IR light, by imparting electromagnetic properties in response to microwave irradiation, or by containing a magnetic material or electrically-conductive material. Column 6, lines 5-13.

Each of these methods of marking the thermal transfer sheet is distinct, obviously requiring application of different materials to the sheet by different ways. Indeed, the Takeda patent proceeds to describe application and detection of each of these distinct marks in turn in the Detailed Description section.

The various marks are described beginning in the middle of column 10. A mark having optical properties in the UV or IR light region may include one of the compounds in the paragraph in column 12 beginning at line 20 or one of the materials described in the section from

line 52 to column 13, line 19. The UV or IR light-absorbing material is combined with a binder resin as listed in the section beginning on line 33 in column 13. This blend of UV or IR light-absorbing compound can be applied on the thermal transfer sheet by gravure printing, offset printing, letterpress printing, flexographic printing, or silk screen printing. Column 14, lines 10-15.

The rejection suggests that this passage teaches preparation of an electrical circuit by gravure printing of a conductive ink. Applicants respectfully disagree.

Next, the Takeda patent describes resonance circuits that can be formed by laminating a metal foil on both sides of a dielectric film or by printing an electrically conductive ink on both sides of a dielectric film. Column 14, lines 35-51.

Next, the Takeda patent describes a mark containing an electrically-conductive material that "can be formed as an electrically-conductive layer by using, for example, an electrically-conductive ink containing a resin and a low melting metal material such as zinc, tin and the like or a metal foil made of a low melting point metal material." Column 15, lines 12-19.

The Takeda patent describes marks having electromagnetic properties in response to microwave beginning on line 38 of column 15. The mark having electromagnetic properties in response to microwaves can be formed by plating gaseous metal by vacuum deposition or by coating with a coating solution containing an electrically conductive material. Column 15, lines 61-67.

The Takeda patent then describes magnetic marks prepared form magnetic powders in a resin binder. Column 16, lines 10-54.

Finally, the Takeda patent mentions a mark containing an electrically-conductive material formed from an electrically-conductive ink containing a resin and metal powders or carbon or from a metal foil. The application is not described.

Applicants submit that the rejection improperly combines passages referring to many different marks out of their context in the patent. There is no teaching or suggestion that one type of mark may be applied in the same way as another, and it would not be reasonable to expect that a particular method is universal regardless of the material to be applied. In particular, and perhaps more importantly, the Takeda patent does not disclose, and nowhere suggests, a conductive ink comprising a carboxylic acid- or anhydride-functional aromatic vinyl polymer and a conductive material. In addition, there is no suggestion of printing this conductive ink, or any other conductive ink, by gravure printing or flexographic printing.

The Office Action suggests that one would choose styrene-acrylic emulsion as a preferred binder for reduced emissions of volatile organic compounds and to form "good deposition of the metals on substrates forming imprints and circuits by gravure printing because of its simplicity." Page 4 of the Office Action. Applicants do not find such teachings in the Takeda patent. Accordingly, the Examiner is requested to support this argument by appropriate reference to the prior art.

Applicants, therefore, submit that the Takeda patent does not anticipate or render obvious the present invention. Withdrawal of the rejection and reconsideration of the claims are respectfully requested.

Rejection Under 35 U.S.C. § 102(b) or § 103(a) over Morizumi et al.

Claims 1-4 have been rejected as anticipated by or obvious over Morizumi et al, EP 1014302. Applicants respectfully traverse the rejection as applied to the amended claims and request reconsideration.

The Morizumi reference does not disclose or suggest an electrical circuit or component having print containing both carbon black and a conductive flake material. The Morizumi reference teaches only conductive particulate materials.

Moreover, the Morizumi reference does not disclose or suggest print thicknesses of 5 microns or less for its conductive print. Although it mentions gravure printing, printing of the silver paste that it teaches — see, e.g. paragraph [0035]—would appear to produce much thicker print. Furthermore, in the examples provided the conductive circuit elements are printed by screen printing. See the discussion in the present application in paragraph [0004].

Finally, the Office Action suggests that one would choose styrene-acrylic emulsion as a preferred binder for reduced emissions of volatile organic compounds and to form "good deposition of the metals on substrates forming imprints and circuits by gravure printing because of its simplicity." Page 5 of the Office Action. Applicants do not find such teachings in the Morizumi reference. Accordingly, the Examiner is requested to support this argument by appropriate reference to the prior art.

Accordingly, for all of these reasons, Applicants submit that the Morizumi reference does not anticipate or make obvious the present invention. Withdrawal of the rejection and reconsideration of the claims are respectfully requested.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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